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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/083,841	02/27/2002	William Herbert Sahm III	120781	7849

7590 06/24/2003
John S. Beulick
Armstrong Teasdale LLP
Suite 2600
One Metropolitan Sq.
St. Louis, MO 63102

EXAMINER

NGUYEN, VINCENT Q

ART UNIT	PAPER NUMBER
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2858

DATE MAILED: 06/24/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/083,841	Applicant(s) SAHM ET AL.	
	Examiner Vincent Q Nguyen	Art Unit 2858	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 6, 8-11, 13, 15-17 and 19 is/are rejected.
- 7) ☒ Claim(s) 5, 7, 12, 14, 18 and 20 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 February 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>5</u> . | 6) <input type="checkbox"/> Other: |

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, a plurality of generators and capacitor banks (Claim 22) must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

2. The disclosure is objected to because of the following informalities: Page 11, line 2, should capacitor bank 16 be capacitor bank 14?

Appropriate correction and/or explanation is required.

Objection

3. Claim 2, line 2, "circuit" should be inserted between "detection" and "is".

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1, 6, 8, 9, 13, 21, 23, are rejected under 35 U.S.C. 102(b) as being anticipated by Sun (4,218,718).

Regarding claims 1, 9, 21, 23, Sun discloses a device comprising (Figures 4-6) a first detection circuit (34, 46) (figure 4) electrically coupled to a first phase (a) of said three-phase (a, b, c) transmission system (33); a second detection circuit (36, 48) electrically coupled to a second phase (b) of said three-phase transmission system different than said first phase; and an event output switch (82, 84, 86) electrically coupled to said first detection circuit (34, 46) and said second detection circuit (36, 48), said event output switch (82, 84, 86) configured to actuate (trigger) when a subsynchronous current on at least one of said first phase (a) and said second phase (b) exceeds a pre-selected subsynchronous current setpoint (Column 11, lines 4-25; Column 13, lines 52-68; column 14, lines 1-3) (See also figure 1).

Regarding claims 6, 13, Sun discloses said first detection circuit (34, 46) and said second detection circuit (36, 48) are operable using at least one of a current input (34) and a voltage input (40).

Regarding claim 8, Sun discloses said apparatus is operable using at least one of a plurality of line frequencies (f_1 - f_n) (figure 5), a subsynchronous passband (72), a passband gain (62) and a variable current range (46).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 3, 4, 10, 11, are rejected under 35 U.S.C. 103(a) as being unpatentable over Sun (4,218,718).

Regarding claims 3, 10, Sun does not explicitly disclose said event output switch is configured to actuate in less than approximately one second when a subsynchronous current is detected. However, Sun discloses that (Column 1, lines 51-54), since the subsynchronous oscillation may be produced in a very short period of time, the processing speed of the relay must be fast enough to provide the detection and corrective action before actual damage occurs. Therefore, it would have been obvious to one of ordinary skilled in the art at the time the invention was made to actuate Sun's relay in less than approximately one second, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or

workable ranges involves only routine skill in the art. (See MPEP 2144.05 *In re Aller*, 105 USPQ 233).

Regarding claims 4, 11, Sun does not explicitly disclose preselected subsynchronous current setpoint is between approximately 17% and approximately 67% of a nominal line frequency. However, Sun discloses that (Column 13, lines 57-68; column 14, lines 1-3) preselected subsynchronous current setpoint is between 15Hz and 45Hz (Which is between 25% and 75% of a nominal line frequency 60Hz). Therefore, it would have been obvious to one of ordinary skilled in the art at the time the invention was made to incorporate preselected subsynchronous current setpoint, such as between 17% and 67%, into the system of Sun, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. (See MPEP 2144.05 *In re Aller*, 105 USPQ 233).

8. Claims 2, 15-17, 19, 22, are rejected under 35 U.S.C. 103(a) as being unpatentable over Sun (4,218,718) in view of Bhargava (4,607,217).

Regarding claim 2, Sun does not disclose at least one of the first detection circuit and the second detection circuit is electrically coupled to a series capacitor bank. Bhargava discloses a system (figures 2-3) similar to that of Sun and further discloses at least one detection circuit (28, 29) is electrically coupled to a series capacitor bank (17) (Figure 2) for the purpose of enhancing the detection of subsynchronous current (Column 2, lines 3-14). It would have been obvious to one of ordinary skilled in the art

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at the time the invention was made to incorporate a series capacitor bank, as taught by Bhargava, into the system of Sun so that the subsynchronous resonance effect is amplified and can be detected easily from the voltage across the series capacitors (Bhargava's column 2, lines 3-15).

Regarding claim 15, pertinence to the discussion of claims 1 and 9, except for a series capacitor bank, which has been discussed in claim 2, Sun discloses every subject matter recited in the claim. It would have been obvious to one of ordinary skilled in the art at the time the invention was made to incorporate a series capacitor bank into the system of Sun for the same reason as set forth in claim 2.

Regarding claim 16, Sun does not explicitly disclose said event output switch is configured to actuate in less than approximately one second when a subsynchronous current is detected. However, Sun discloses that (Column 1, lines 51-54), since the subsynchronous oscillation may be produced in a very short period of time, the processing speed of the relay must be fast enough to provide the detection and corrective action before actual damage occurs. Therefore, it would have been obvious to one of ordinary skilled in the art at the time the invention was made to actuate Sun's relay in less than approximately one second, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. (See MPEP 2144.05 *In re Aller*, 105 USPQ 233).

Regarding claim 17, Sun does not explicitly disclose preselected subsynchronous current setpoint is between approximately 17% and approximately

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67% of a nominal line frequency. However, Sun discloses that (Column 13, lines 57-68; column 14, lines 1-3) preselected subsynchronous current setpoint is between 15Hz and 45Hz (Which is between 25% and 75% of a nominal line frequency 60Hz). Therefore, it would have been obvious to one of ordinary skilled in the art at the time the invention was made to incorporate preselected subsynchronous current setpoint, such as between 17% and 67%, into the system of Sun, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. (See MPEP 2144.05 *In re Aller*, 105 USPQ 233).

Regarding claim 19, Sun discloses said first detection circuit (34, 46) and said second detection circuit (36, 48) are operable using at least one of a current input (34) and a voltage input (40).

Regarding claim 22, Sun discloses (Figure 4) coupling the detection circuit (34, 46) to a phase (a) of a three-phase (a, b, c) transmission system (33) comprises coupling the detection circuit to a phase of a three-phase transmission system including plurality of generators (Column 5, lines 58-63). Sun does not disclose plurality of capacitor banks and the step of coupling the detection circuit (34, 46) to a three-phase system including plurality of capacitor banks. Bhargava discloses a system similar to that of Sun (figures 2-3) and further discloses detection circuit (28, 29) is electrically coupled to plurality of generators (15) and series capacitor banks (17) (Column 3, lines 1-4) for the purpose of enhancing the detection of subsynchronous current (Column 2, lines 3-14). It would have been obvious to one of ordinary skilled in the art at the time

the invention was made to incorporate a three-phase system including a plurality of generators and capacitors as taught by Bhargava into the system of Sun for the same reason as set forth in claim 2.

Allowable Subject Matter

9. Claims 5, 7, 12, 14, 18, 20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

The prior art of record does not teach or suggest second detection circuit comprises an alternating current analog output and a direct current analog output, as recited in the dependent claims 5, 12, 18; first detection circuit and second detection circuit comprise a jumper switch configured to select at least one of said current input and said voltage input, as recited in claims 7, 14, 20.

Contact Information

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vincent Q Nguyen whose telephone number is (703) 308-6186. The examiner can normally be reached on Mon-Fri 8:30am-5:00pm.

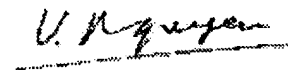
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, N. Le can be reached on (703) 308-0750. The fax phone numbers for the

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organization where this application or proceeding is assigned are (703) 308-5841 for regular communications and (703) 308-5841 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Vincent Q. Nguyen

A handwritten signature in cursive script, appearing to read "V. Nguyen", is written over a horizontal line.

June 20, 2003